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A Note on Risk Parity Investing

by Dr. David N. Esch

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Dr. David Esch

Executive Director of Research
New Frontier

Dr. David Esch is the Managing Director of Research at New Frontier, having joined the firm in 2008. Dr. Esch completed his Ph.D. in Statistics at Harvard University in 2004. His specialties include mathematical statistics, numerical analysis and computation, Bayesian statistics, and econometrics. He is author of the article "Non Normality Facts and Fallacies," (Journal Of Investment Management 1st Quarter 2010), selected as one of the best JOIM papers of 2010, and co-author of many other peer-reviewed journal articles. His educational background also includes a Bachelor of Arts degree from Harvard College and a Masters degree in Mathematics and Statistics from Boston University.

Risk parity strategies gained a lot of attention in the post-2008 world of investment products. In a fit of defensive anxiety, investors flocked to products based on methods which purportedly would have lost less during the crisis. A recent Wall Street Journal article claims that "Assets in risk-parity mutual funds totaled $15.1 billion at the end of May, up from $73.6 million at the end of 2008, according to fund-research firm Morningstar Inc. Some estimate there is as much as $200 billion in total in risk-parity assets."[1] The marketability of these types of portfolios to nervous risk-averse investors cannot be overstated. Unfortunately for these investors, unless they change investment vehicles they will likely miss out on much of the recovery that they could have participated in without sacrificing risk control. Many of these funds have already lost value recently over concerns about the U. S. bond markets.

Risk parity strategies leave money on the table in good times and do not protect investors from losses in bad times. In good times, risk parity strategies typically ignore any information about expected returns, showing no preference, all else equal, for a better performing asset or risk premium factor. In a crisis, a risk parity portfolio will still lose money, especially when highly levered, as is often the case to compensate for unimpressive returns. According to the Wall Street Journal,

"Risk-parity funds held up relatively well during the financial crisis. The Putnam risk-parity product and an AQR strategy similar to its new mutual fund saw declines of 18% to 19% in 2008—compared with a 22% loss for Vanguard Balanced Index, a traditional 60% stock, 40% bond fund, according to investment-research firm Morningstar Inc."[2]

This alleged protection, losing 3-4% less than the traditional balanced fund, is not very compelling when the small allocation to higher-risk, higher-return equities underperforms the traditional portfolios by far greater amounts during recovery periods. Why are investors attracted to these portfolios with no particular advantages other than rationing risk equally to portfolio components?

One reason risk parity may have received increased attention recently is its easy post-crisis superficial marketability for anxious risk-averse investors with 20/20 hindsight. Its name suggests attention to risk (risk), and a balanced, reasonable approach (parity). These strategies have been marketed as able to weather all types of markets and still produce respectable returns. To a layperson, this may sound

like a complete system for controlling risk, and a reasonable investment. However, nothing about risk parity is better by design than other allocation strategies — the design principle of treating unequal things equally carries no particular investment benefits, especially when parity is assigned to assets or asset groups known to have unequal expected total returns.

There is no universally agreed-upon definition of risk parity, and most definitions leave a lot of room for manager discretion. For this article, risk parity is defined as a strategy which allocates portfolio weight based on budgeting (possibly but not necessarily on an equal basis) risk contributions of each asset, asset class, or risk premium factor, but deliberately disregards any information about alpha or expected returns. Practitioners disagree about whether these strategies should be managed passively or rebalanced aggressively, and how the portfolio should be leveraged. The above definition still leaves room for quite a range of portfolio construction and management processes, some of which may be better than others, but the criticisms here apply to all of these strategies, none of which are designed according to all of the criteria important to investors.

Two theoretical assumptions often cited that are sufficient to justify risk parity are (1) equal Sharpe ratios and (2) uncorrelated assets. When these conditions are satisfied, risk parity portfolios are provably efficient. But if efficiency is an important characteristic for an investment portfolio why not simply use methods that yield efficient portfolios with or without laughably outlandish assumptions?

Risk parity strategies attempt to budget total portfolio risk into equal portions by individual asset, asset class, or risk factor. This gives a set of portfolio weights at a specific total estimated portfolio risk. An ironic fact, given the usual marketing pitch of risk parity strategies, is that it is easy to construct portfolios at the same expected return with lower total risk than the risk parity portfolio. Likewise one can compute portfolios of the same total portfolio risk with greater, indeed possibly far greater, levels of expected return, if any return information is available. Markets generally pay premiums to investors for bearing risk, and not all investable assets are created equal in terms of risk and return. Sensible risk management must control risk at the portfolio level, and not at the level of portfolio subsets' contributions.

Furthermore, risk parity strategies depend completely on current and precise risk estimates. Changes in the estimates require rebalancing to properly conform to the strategy. Consider the typical fluctuation of the VIX indices, and how much this type of fluctuation relative to other asset classes would affect portfolio weights. How much discrepancy is a risk parity manager willing to tolerate from the exact current risk parity portfolio, and why are those rules anything but arbitrary? Passive

management has been shown to generally outperform similar more aggressive strategies, yet there is still plenty of room within passive management strategies to miss the mark. Besides, drifting portfolios will eventually no longer be able to make claims of risk parity. Passive management can indeed save transaction costs and may be recommendable, but paying a manager to ignore one's portfolio does not normally align with clients' preferences, so a well-managed rebalancing scheme should be a requirement for a passive strategy. An intelligent rebalancing strategy requires some measure of acceptability, or statistical significance, of the difference between the held portfolio and the optimal. Risk parity itself does not address these issues, so caveat emptor. This advice applies to all passive strategies.

Managers often increase leverage with risk parity strategies to wring out returns comparable to other strategies. In so doing they are also multiplying any latent risks such as estimation errors or badly fit factor models. In a time of extreme crisis the unlevered risk parity investor, like everyone else invested in markets, will lose wealth. Claims otherwise should be treated with skepticism. Levered risk parity investors will lose even more. In a truly catastrophic crisis, all corners of the market are affected and total correlations increase to the point where only one factor, a factor related to total market return which touches all assets in the portfolio, is dominating all price movement. Since all assets load on this factor it is impossible to attain parity with other non-crisis-related factors, and the portfolio will necessarily lose value. Highly leveraged positions will all but guarantee more precipitous falls during crises. In low volatility periods risk parity investors will inevitably underperform investors with better strategies under similar conditions of leverage, since risk parity was not designed with returns as an objective. The underperformance in good times is likely to be far greater in magnitude than any loss prevention during a crisis for long term investors.

More cynically, it is convenient that these strategies demand a greater proportion of low risk fixed income assets, which may incentivize fund managers for companies which also specialize in fixed income against their customers' best interests. The famous Brinson, et al study determined that the stock/bond ratio is the most important determiner of portfolio risk. 60% stocks and 40% bonds has become an industry standard since it approximates the total market weights of these two asset classes. A risk parity allocation to stocks and bonds would typically assign only 10% of portfolio weight to stocks. Such a low equity weight means little participation in recovering stock markets. Also, given current concerns about possible increases to interest rates, it seems unwise to allocate 90% of portfolio weight to bonds. Predatory practices are unfortunately all too common and serve to enrich unscrupulous investment sales professionals. Over time such practices also tarnish the reputations of the strategies themselves and then the predators

move on to the next fashionable novel approach to portfolio allocation while claiming innovation. Risk parity is likely to lose favor in the presence of a strong recovery, because of its low allocations to equities, and furthermore amid anxieties about rising interest rates and the impending end of government quantitative easing programs, because of its high allocations to fixed income assets.

Much good science has been established on best practices for portfolio allocation, and the savvy long-term investor will avoid the latest fads and stick with the tried and true principles of optimal diversification and risk management at the portfolio level. In spite of the popularity of methods which have a veneer of protecting investors or appeal to fear, truly risk averse investors should consider proven methods of reducing portfolio risk while remaining efficient, such as choosing a portfolio lower on the Michaud efficient frontier. While these efficient portfolios may be far from risk parity, they achieve far better total risk control and at a specific estimated risk will generate greater return under a wide variety of market scenarios.

[1] Corkery, M., Cui, C. and Grind, K., "Fashionable 'Risk Parity' Funds Hit Hard," The Wall Street Journal, June 27, 2013.

[2] Laise, E., "How Risky are those Low-Risk Funds," The Wall Street Journal, October 2, 2010.

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